

Page 12, beginning at line 15, please replace the paragraph as follows:

A1  
As the opening proportion of the wellhole part becomes smaller than 20% of the floor area of the lower floor, transmission of radiant heat from the floor heating device to the upper floor becomes difficult, and the heating effect of the upper floor becomes lower. As the opening proportion becomes higher than 50% of the floor area of the lower floor, the floor area of the upper floor becomes excessively narrow, and the living floor area becomes narrow. This is not economical and insufficient in practicability of the upper floor.

Page 13, beginning at line 12, please replace the paragraph as follows:

A2  
Thereby, in addition to the actions of the first through fourth aspects, the following actions are obtained. (1) Since the heat transmission coefficient of the opening is  $1.4 \text{ W/m}^2\text{K}$  through  $2.5 \text{ W/m}^2\text{K}$ , the heat loss amount of the heat leaking from the openings of the window parts and the door parts at the entrance to the outside can be suppressed, high airtightness and high heat insulation of the energy-saving housing can be maintained, and loads on the floor heating device and cooling device of the energy-saving housing can be suppressed, whereby the indoor heating efficiency and cooling efficiency can be increased by a small quantity of energy.

Page 19, beginning at line 6, please replace the paragraph as follows:

A3  
Fig. 1 is a principal partially sectional view of a two-storied energy-saving housing according to a first embodiment of the invention;

Page 19, beginning at line 14, please replace the paragraph as follows:

A4  
Fig. 6 is a principal partially sectional perspective view showing a programmed ventilator of the energy-saving housing of the embodiment;

Page 19, beginning at line 17, please replace the paragraph as follows:

A5  
Fig. 7 is a partially sectional view showing a housing ventilation part of the energy-

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saving housing of the embodiment;

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Page 20, beginning at line 9, please replace the paragraph as follows:

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A6  
Fig. 1 is a principal partially sectional view of the two-storied energy-saving housing of the embodiment, Fig. 2 is an enlarged view of the section A of Fig. 1, Fig. 3 is an enlarged view of the section B of Fig. 1, and Fig. 4 is an enlarged view of the section C of Fig. 1.

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Page 20, beginning at line 14, to page 21, line 19, please replace the paragraph as follows:

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A7  
In Fig. 1, the numerical reference 1 denotes the two-storied energy-saving housing of this embodiment of the invention. Reference number 2 denotes the roof part of the energy-saving housing 1. Reference number 3A denotes the wall part of the second floor of the energy-saving housing 1. Reference number 3B denotes the wall part of the first floor of the energy-saving housing 1. Reference number 4A denotes the floor part of the second floor of the energy-saving housing 1. Reference number 4B denotes the floor part of the first floor of the energy-saving housing 1 and 5A denotes the ceiling part of the second floor of the energy-saving housing 1. Reference number 5B denotes the ceiling part of the first floor of the energy-saving housing 1 and 6 denotes the window parts (openings) with a heat transmission coefficient of 1.4 W/m<sup>2</sup>K through 2.5 W/m<sup>2</sup>K formed at predetermined portions of the wall parts 3A and 3B. Reference number 7 denotes a wellhole part, which opens with an opening proportion of 15% through 50% or 20% through 50% of the floor area of the first floor and communicates the first floor and second floor with each other. Reference number 8 denotes a housing ventilation part provided at the top part of the roof part 2. In this embodiment, the opening proportion of the wellhole part 7 does not include the opening proportion of the stairs. Only the window parts 6 are shown as openings, however, the door parts (not shown) of the entrance, kitchen, and the like are also regarded as openings, and are formed so as to

A2  
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have the same heat transmission coefficient of 1.4 W/m<sup>2</sup>K through 2.5 W/m<sup>2</sup>K as that of the window parts 6.

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Page 21, beginning at line 23, please replace the paragraph as follows:

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A8

In Fig. 2, reference number 9 denotes the outer roof part of the asbestos straight covered roof part 2. Reference number 10a denotes a structural board for the roof part 2 composed of structural plywood disposed at the lower surface (the ceiling part 5A side) of the outer roof part 9. Reference number 10b denotes a structural board for the roof part 2 composed of structural plywood that is disposed below the structural board 10a via a ventilation layer 11 of the roof part 2 formed at the lower part of the structural board 10a and 12a denotes a heat insulator for the roof part 2 made from soft foamed urethane of an organic foamed material sprayed on the lower surface of the structural board 10b. Reference number 12b denotes a heat insulator made from soft foamed urethane of an organic foamed material sprayed on the wall part 3A side between the roof part 2 and the ceiling part 5A of the second floor and 13 denotes an eave edge intake louver formed so as to be communicated with the ventilation layer 11 at the edge of the eaves of the roof part 2. Reference number 14 denotes a gutter provided below the eave edge intake louver 13 at the edge of the eaves of the roof part 2.

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Page 22, beginning at line 18, to page 23, line 14, please replace the paragraph as follows:

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A9

Reference number 15 denotes outer walling for the wall parts 3A and 3B. Reference number 16 denotes ventilation layers of the wall parts 3A and 3B formed at the inner side from the outer walling 15, reference number 16a denotes an eave soffit edge portion formed so as to be communicated with the ventilation layer 16 at the upper end part of the ventilation layer 16 below the roof part 2. Reference number 17 denotes windbreak moisture permeative

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cont

sheets for wall parts 3A and 3B, which are disposed at the inner sides from the outer walling 15 via the ventilation layers 16 and formed of synthetic resin sheets or films and 18 denotes structural boards for the wall parts 3A and 3B, which are provided at the inner side from the windbreak moisture permeative sheet 17 and formed of structural plywood. Reference number 19 denotes heat insulators for the wall parts 3A and 3B, which are made from soft foamed urethane of an organic foamed material sprayed on the back surfaces of the structural boards 18. Reference number 20a denotes inner walling for the wall part 3A made from an inorganic material such as a double plaster board provided at the inner side of the heat insulator 19. Reference number 21a denotes inner walling made from an inorganic material such as a plaster board provided at the inner side of the ceiling part 5A of the second floor.

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Page 23, beginning at line 15, to page 24, line 13, please replace the paragraph as follows:

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A10

In Fig. 3, reference number 20b denotes inner walling for the wall part 3B made from an inorganic material such as a plaster board provided at the inner side of the heat insulator 19 of the wall part 3B. Reference number 21b denotes the inner walling which is doubly provided and made from an inorganic material such as a plaster board provided at the inner side of the ceiling part 5B of the first floor. Reference number 22 denotes a heat insulator made from soft foamed urethane of an organic foamed material sprayed on the wall part 3B side (heat insulator 19) between the floor part 4A of the second floor and the ceiling part 5B of the first floor. Reference number 23 denotes a wooden floor of the floor part 4A of the second floor. Reference number 24 denotes a structural board formed of structural plywood provided at the lower surface (first floor side) of the wooden floor 23. Reference number 25 denotes a sound insulation board provided on the lower surface of the structural board 24. Reference number 26 denotes a structural board formed of structural plywood provided on the

A10  
lower surface of the sound insulation board 25. Reference number 27a denotes an airtight packing made from rubber or a high density foamed resin of independent foams, which is provided on the lower surface of the structural board 24 of the floor part 4A at the side of the wall parts 3A and 3B. Reference number 27b denotes a structural member (frame) provided on the lower surface of the airtight packing 27a.

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Page 24, beginning at line 14, to page 26, line 9, please replace the paragraph as follows:

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A11  
In Fig. 4, reference number 28 denotes the foundation of the energy-saving housing 1. Reference number 29 denotes a dampproofing sheet provided on the upper end face of the foundation 28. Reference number 30a denotes an airtight packing provided between structure members (groundsels) 30b between the dampproofing sheet 29 and the lower end part of the heat insulator 19 of the wall part 3B. Reference number 31 denotes a draining part formed at the lower end part of the ventilation layer 16 at the upper side of the foundation 28 so as to be communicated with the ventilation layer 16. Reference number 32 denotes a floor heating device formed at the lower side of the floor part 4B. Reference number 33 denotes a filling layer for the floor heating device 32 formed by filling gravel and decomposed granite soil on the ground. Reference number 34 denotes a heat insulator for the floor heating device 32 formed of a plate-shaped foamed member provided by a predetermined length above the filling layer 33. Reference number 35 denotes an upper filling layer for the floor heating device 32 filled above the heat insulator 34. Reference number 36 denotes a dampproofing sheet for the floor heating device 32 spread on the upper surface of the upper filling layer 35. Reference number 37 denotes a floor mold concrete layer for the floor heating device 32 provided on the dampproofing sheet 36. 38 denotes a dampproofing sheet for the floor heating device 32 spread on the upper surface of the floor mold concrete layer 37. Reference

number 39 denotes a heat insulator for the floor heating device 32 formed of a plate-shaped foamed member provided on the dampproofing sheet 38. Reference number 40 denotes a heat insulator provided between the heat insulators 34 and 39 along the foundation 28. Reference number 41 denotes a heat accumulating layer for the floor heating device 32 formed from mortar or concrete formed on the heat insulator 39. Reference number 42 denotes a reinforcing mesh which is formed into a grid shape having equal pitches of 100 mm through 150 mm and buried in the heat accumulating layer 41. Reference number 43 denotes hot water pipes formed of polybutene pipes with a diameter of 16 mm, which are piped above the reinforcing mesh 42 based on the grid of the reinforcing mesh 42 and buried in the heat accumulating layer 41. Reference number 44 denotes plywood provided at the end of the wall part 3B side of the heat accumulating layer 41. Reference number 45 denotes a felt shrinkage absorber formed from fibers of palms provided between the plywood 44 and structure member 30b. Reference number 46 denotes a floor substrate plywood for the floor part 4B provided on the upper surface of the heat accumulating layer 41 of the floor heating device 32. Reference number 47 denotes flooring for the floor part 4B provided on the upper surface of the floor substrate plywood 46.

Page 28, beginning at line 12, please replace the paragraph as follows:

On the upper surface of the structural board 10a, a waterproofing sheet is spread, and then tile and other materials are placed thereon.

Page 28, beginning at line 21, to page 29, line 7, please replace the paragraph as follows:

In the figure, reference number 48 denotes a boiler for the floor heating device 32 installed outdoors. Reference number 49 denotes a pump for supplying hot water to the hot water pipes 43. Reference number 50 denotes a supply pipe which is connected to boiler 48

A13  
cont

via pump 49 and supplies hot water to the respective hot water pipes 43 in each direction.

Reference number 51 denotes a collecting pipe (header) to which the respective hot water pipes 43 are connected. Reference number 52 denotes a returning pipe which is connected to the collecting pipe 51 and boiler 48, and returns hot water that has circulated in the respective hot water pipes 43 to the boiler 48.

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Page 30, beginning at line 13, to page 31, line 3, please replace the paragraph as follows:

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A14

Then, shrinkage absorber 45 and plywood 44 are placed on the heat insulator 39 along the structure member 30b, the heat accumulating layer 41 made from mortar or concrete is formed by a predetermined thickness on the heat insulator 39, and then the reinforcing mesh 42 formed into an equal-spaced grid is laid above the heat accumulating layer 41. Next, as shown in Fig. 5, the hot water pipes 43 are piped into a swirl pattern based on the grid of the reinforcing mesh 42 from the position of the wall part side on which the outside air greatly influences, and the hot water pipes 43 are tied and fixed to the reinforcing mesh 42. Herein, the hot water pipes 43 are piped, as shown in Fig. 5, for the entire first floor excluding sections for which objects are placed on and floor heating is not necessary such as the sink in the kitchen and the location of the bathtub.

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Page 33, beginning at line 3, please replace the paragraph as follows:

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A15

As partitioning walls for the second floor, inner walls made from an inorganic material as the wall parts 3A and 3B are preferably used. Thereby, the radiant heat from the floor heating device 32 of the first floor can be accumulated in the partitioning walls and the radiant heat can be obtained from the partitioning walls, and this improves heating efficiency and heating performance of the second floor.

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Page 33, beginning at line 16, to page 34, line 11, please replace the paragraph as

follows:

A16  
In the figure, reference number 53 denotes air inlets of the programmed ventilator formed in predetermined wall surfaces of each floor of the energy-saving housing 1 so as to be communicated with the outdoor air. Reference number 54 denotes suction ports of the programmed ventilator formed at predetermined positions of the ceiling parts 5A and 5B inside the respective first and second floors of the energy-saving housing 1. Reference number 55 denotes ventilation ducts of the programmed ventilator provided in the attic of each floor and communicated with the respective suction ports 54. Reference number 56 denotes branching portions of the programmed ventilator which are provided on the attic of each floor and to which the respective ventilation ducts 55 are connected. Reference number 57 denotes a ventilation fan of the programmed ventilator provided on the attic of the first floor and connected to the respective branching portions 56 via the ventilation ducts 55. Reference number 58 denotes an air outlet of the programmed ventilator which is connected to the ventilation fan 57 via the ventilation ducts 55 and formed at a predetermined position in the outer wall of the energy-saving housing 1.

Page 36, line 2, please replace the paragraph as follows:

A17  
In the figure, reference number 59 denotes a ventilation communicating portion which opens at the top part of the roof part 2 and communicates the ventilation layer 11 and housing ventilation portion 8, reference number 60 denotes ventilation passages of the housing ventilation portion 8 communicated with the ventilation communicating portion 59, and reference number 61 denotes an exhaust opening communicated with the ventilation passages 60 and formed to open at the upper surface of the housing ventilation portion 8. The arrows in the figure show the flows of the outdoor air entering through the ventilation layer 11.